

Appl. No. 10/518,397
Art Unit: 3751
Atty. Docket No. 26764U
Reply to Office Action of May 5, 2006

Amendments to the Drawings

Please accept the following amended drawings:

The attached sheets of drawings include changes to all Figures 1 - 11. These sheets, numbered 1/4 to 4/4 replace the original sheets, which included all of Figures 1 - 11 and were also numbered 1/4 to 4/4. In all of the Figures 1 - 11, the poor line quality has been corrected in the new formal drawings.

Attachment: Replacement Sheets

REMARKS/ARGUMENTS

Claims 1 – 23 are presented for reconsideration and further examination in view of the foregoing amendments and following remarks.

In the outstanding Office Action, the Examiner made a requirement for new drawings because the figures contain poor line quality; objected to the Abstract, the Specification, and claim 9 because of informalities; rejected claims 1 - 14 under 35 U.S.C. § 112, 2nd paragraph as being indefinite; rejected claims 1 - 3 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,085,589 to Sands; rejected claims 1, 4 - 8, and 10 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,683,957 to Sands; rejected claims 1, 4, and 9 - 12 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 5,207,243 to Sarro; and rejected claims 13 and 14 under 35 U.S.C. 103(a) as being unpatentable over Sarro in view of Applicant's Admitted Prior Art (AAPA).

By this Response and Amendment, the drawings, abstract, and specification have been corrected; the preamble in claims 1 - 14 has been changed from “shut-off device” to --explosion protection valve-- in independent claim 1; new independent claims 17 and 23 now separate the features regarding the location of the interfering means as clarification for the Examiner; the term “flow area” has been changed to --flow cross-section-- to correct an error in translation in claims 1, 2, and 4; claim 2 has been amended and new claims 15, 18, and 19 have been added to define the term “flow cross-section”; claim 7 has been amended to correct the antecedent basis problem; claim 9 has been amended to enclose the reference numbers with parentheses; new dependent claim 16 recites features shown in Figure 11, for example; new independent claim 17 refers to the interfering means located on the inner side of the housing and the flow-cross section defines an annular passage; new dependent claims 20, 21, and 22 correspond to claims 3, 12, and 13, respectively; new

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independent claim 23 recites that the interfering means are positioned between the valve seats and further restricts the claim to a two-way shut-off device (i.e., two directions); and the rejections under 35 U.S.C. §§ 112, 102, and 103 are traversed.

Support for the amendments to the claims can be found, for example, in paragraphs [0026] and [0028] of the published specification. Therefore, it is respectfully submitted that the above amendments do not introduce any new matter to this application within the meaning of 35 U.S.C. §132.

Objection to the Drawings

The drawings were objected to, and the Examiner made a requirement for new drawings, because the drawings contain poor line quality.

Response

In response, Applicant submits attached sheets of replacement drawings including changes to all Figures 1 - 11. In all of the Figures 1 - 11, the poor line quality has been corrected in the new formal drawings. Applicants respectfully request that the objection be withdrawn as the drawings are now in compliance with 37 CFR §§ 1.84, 1.121(d).

Objection to the Specification

The Examiner objected to the Abstract as not containing proper language; and objected to the disclosure because of informalities. In particular, the Abstract contains the terminology “The invention relates to” and “Said;” and the disclosure contains the terminology “as claimed in the preamble of claim 1” and “defined in claim 1.”

Response

In response, Applicant has deleted the inappropriate language. Accordingly, Applicant respectfully submits that the specification now complies with 37 CFR §§ 1.71, 1.72 and requests that the objections be withdrawn.

Claim Rejections - 35 USC § 112, 2nd paragraph

The Examiner rejected claims 1 - 14 as being indefinite. In particular, the phrase “on the outer side of the closing body (3) and/or on the inner side of the housing (2), especially in the region of the flow area (24)” in claim 1 was unclear; there was insufficient antecedent basis for “the diametral region” in claim 7; and claims 9 and 10 recite a broad range or limitation together with a narrow range or limitation in the phrases “the interfering edge 26 is disposed on the housing and, in particular, in the connecting region of two housing halves 2, 2” and “the two wall portions forming an interfering edge meet at an angle (α) between 60° and 179°, preferably 120°.”

Response

The following is a quotation of the second paragraph of 35 U.S.C. 112:

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The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

In response, claim 1 has been amended to remove the indefinite language; claim 7 has been amended to correct the antecedent basis; and claims 9 and 10 have been amended to correct the range limitations. Accordingly, as claims 1 - 14 now comply with 35 USC § 112, 2nd paragraph, Applicant respectfully requests withdrawal of the rejections.

Rejection Under 35 U.S.C. §102(b)

The Examiner rejected claims 1 - 3 as being anticipated by Sands ('589); rejected claims 1, 4 - 8, and 10 as being anticipated by Sands ('357); and rejected claims 1, 4, and 9 - 12 as being anticipated by Sarro.

Response

The test for anticipation under section 102 is whether each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987); MPEP §2131. The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989); MPEP §2131. The elements must also be arranged as required by the claim. *In re Bond*, 15 USPQ2d 1566 (Fed. Cir. 1990).

It is respectfully submitted that the references fail to disclose each and every element as set forth in independent claim 1, as amended.

Amended claim 1 recites a combination of elements, *inter alia*, “[a]n explosion protection valve (1) having a housing (2) and having a rotationally symmetrical closing body (3),...dynamic pressure can be pressed out of an open setting,...against a valve seat (4) into a sealing close setting and can be locked in a closed position by means of a catch device which is a collecting cone (15), wherein on the outer side of the closing body (3)...there are disposed interfering means (25, 25a, 26)...” [emphasis added]

Sands ('589) discloses a safety valve. The valve 20 sealed against the valve seat 35 or 36 by use of an elastomer O-ring 47. See column 1, lines 16 - 18. Opposed conical helical compression springs 50 bias the valve 20 toward an intermediate position between seats 35 and 36. See column 2, lines 55 - 58.

Sands ('957) discloses a safety valve. The valve member V is centrally located in a valve chamber C which causes fluid to divide and flow equally around the circumference of the valve member V. See column 1, lines 23 - 26. Similar to Sands ('589), the valve V in Sands ('957) is spring supported and spring biased by springs 38, 39 to an intermediate position between opposed valve seats 25, 26. See column 2, line 41 to column 3, line 7. Bypass passages 44, 45 are provided in valve body members 11, 12, respectively. Screw threaded bypass control valve 46 is threaded into bore 48. Screw threaded bypass valve 47 is threaded into bore 49. See column 3, line 60 to column 4, line 23.

Sarro discloses a two-way piston check valve. Valve 10 is movable reciprocally within housing 11 against either of respective valve seats 20. The respective inner ends of the tubes 15a, 15b are received on the respective ends of the axially and oppositely projecting cylindrical shafts 19a, 19b of a disc-shaped partition 19, as shown in FIG. 1, so that the fixed tubes 15a, 15b retain the

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partition 19 in rigidly fixed position within the housing 10. *See* column 3, line 34 to column 5, line 4.

Springs 29, 29a bias the valve member or plug 17 from right to left through the valve 10.

However, none of the cited references disclose a closing body (3) dynamic pressure can be pressed out of an open setting against a valve seat (4) into a sealing close setting and which can be locked in a closed position by means of a catch device which is a collecting cone (15) as recited in amended claim 1 of the present invention.

Therefore the explosion protection device, in which the build-up of a critical dynamic pressure at the closing body is promoted without, in normal operation, impairing the flow.

Instead, in the cited references the valve (which is not an explosion valve) is merely biased between opposing valve seats. None of the cited references teach locking the closing body in a closed position as recited in claim 1 of the present invention.

Therefore, Applicant respectfully submits that independent claim 1, as amended, defines over Sands ('589), Sands ('957), and Sarro.

Moreover, as claims 2 - 12 depend from independent claim 1, these claims are believed to be allowable for at least similar reasons.

Therefore, Applicant respectfully requests that the rejection of the claims under 35 U.S.C. § 102 (b) be withdrawn.

Rejection Under 35 U.S.C. §103(a)

The Examiner rejected claims 13 and 14 as being unpatentable over Sarro in view of AAPA.

Response

To establish a *prima facie* case of obviousness, the Examiner must establish: (1) some

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suggestion or motivation to modify the references exists; (2) a reasonable expectation of success; and (3) the prior art references teach or suggest all of the claim limitations. *Amgen, Inc. v. Chugai Pharm. Co.*, 18 USPQ2d 1016, 1023 (Fed. Cir. 1991); *In re Fine*, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988); *In re Wilson*, 165 USPQ 494, 496 (CCPA 1970).

Applicant respectfully traverses the Examiner's rejection since all of the features of the presently claimed invention are not disclosed, taught or suggested in the cited prior art.

Sarro has been discussed above. The Examiner cited AAPA in an attempt to cure the deficiencies of Sarro.

AAPA (or DE 28 01 950, DE 101 13 865, EP 172 364 cited in the specification of this application) teaches explosion valves that create a laminar flow. AAPA is completely silent about the use of interfering means for generating a turbulent flow. Further, AAPA fails to cure the deficiencies of Sarro regarding locking the closing body in a closed position.

Moreover, as claims 13 and 14 depend from independent claim 1, these claims are believed to be allowable for at least similar reasons.

Accordingly, Applicant respectfully requests that the Examiner reconsider and withdraw the rejection under 35 U.S.C. §103(a).

New Claims

New independent claim 17 is clearly distinguished over the cited references because in the relevant flow area in which a flow cross-section defines an annular passage between the closing body and the housing shown in the references, there is no interfering means.

Disc 44 in Sands ('589) is in the line of fluid flow so that it will influence valve motion if

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there is a sudden change in pressure at the two sides. Disc 31 in Sands ('957) merely provides a snug fit. Seat elements 20 in Sarro serve as nozzle passages to smooth the fluid flow.

The relevant flow is not the whole area between the flanges. The flow area between the seat elements and the valve creates a laminar flow in the cited references. Instead, in claim 17, a turbulent flow is created. The same applies to new claim 23.

New dependent claims 15, 16, and 18 - 22 are believed to be allowable for at least similar reasons.

CONCLUSION

In light of the foregoing, Applicant submits that the application is now in condition for allowance. If the Examiner believes the application is not in condition for allowance, Applicant respectfully requests that the Examiner contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

In the event this paper is not timely filed, Applicant petitions for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 14-0112.

Respectfully submitted,
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